

Application No. 10/052,706
Response to Office Action

Customer No. 01933

R E M A R K S

Reconsideration of this application, as amended, is respectfully requested.

THE CLAIMS

New claim 52 has been added to more clearly and positively recite the structural features of the present invention as shown, for example, Figs. 1-3, 9 and 10. And it is respectfully pointed out that new claim 52 is readable on the elected Species of Figs. 1-10.

In addition, claims 2, 5-7 and 10 have been amended to depend from new claim 52, and claims 2 and 5-10 have been amended to better accord with new independent claim 52 and/or to make some minor grammatical improvements and to correct some minor antecedent basis problems so as to put them in better form for issuance in a U.S. patent.

No new matter has been added, and it is respectfully requested that the addition of claim 52 and the amendments to claims 2 and 5-10 be approved and entered.

THE PRIOR ART REJECTION

Claims 1 and 2 were rejected under 35 USC 102 as being anticipated by USP 4,939,579 ("Nakamura"), and claims 5-12 were rejected under 35 USC 103 as being obvious in view of the

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combination of Nakamura and USP 6,195,127 ("Sugimoto"). These rejections, however, are respectfully traversed with respect to the claims as amended hereinabove.

According to the present invention as recited in new independent claim 52, an apparatus is provided for capturing an image of an object. As recited in new independent claim 52, the apparatus comprises: a controller (23) to control an image forming operation of the apparatus; a first addressing circuit (52) communicating with the controller (23) for designating a first address; a second addressing circuit (53) communicating with the controller (23) for designating a second address; a switch (24 or 25) communicating with the controller (23) for outputting an image capturing start signal; and an imager (22) having a plurality of circuit cells two-dimensionally arranged within an image area where the image is projected, the plurality of circuit cells respectively corresponding to pixels of the image.

As recited in new independent claim 52, each of the plurality of circuit cells comprises: a photoelectric converting element (D1) to generate charges associated with an amount of light from the object; a charge storing element (C1) to store charges transferred from the photoelectric converting element (D1); and a MOS transistor (Q5), including a drain that is electrically connected to the charge storing element (C1), a gate

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that is controlled by the first addressing circuit (52) and a source that is controlled by the second addressing circuit (53).

The circuit cells are arbitrarily selectable as one of an arbitrary single circuit cell and an arbitrary group of circuit cells by the controller (23) by designating one of a single address and a group of addresses at a time via the first and second addressing circuits (52 and 53), so as to discharge charges from one of a selected single charge storing element and a selected group of charge storing elements.

The plurality of circuit cells are divided into: (i) first group circuit cells (50a) to capture the image of the object, and (ii) second group circuit cells (50b), which are substantially uniformly disposed in the first group circuit cells (50a) in the image area, to measure an amount of light from the object for a purpose of a photometry operation.

And as recited new independent claim 52, the controller (23) controls the first group circuit cells (50a) and the second group circuit cells (50b) to simultaneously commence respective photoelectric converting actions thereof in response to the image-capturing start signal; the controller (23) measures a signal value of at least one circuit cell selected by the controller (23) in the second group circuit cells (50b) while the first group circuit cells (50a) are performing the photoelectric converting action thereof; and the controller (23) stops the

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photoelectric converting action of the first group circuit cells (50a) when the signal value reaches a predetermined value.

With this structure, the second group circuit cells 50b can be disposed between first group circuit cells 50a in the image area, as shown in Fig. 3, so that a part of the plurality of circuit cells within the image area also serve as photometry elements. In addition, the image-capturing apparatus (for instance, an electronic still camera) is provided with release switch 24, which serves as a signal-outputting device to output the image-capturing start signal, and both the first group circuit cells and the second group circuit cells simultaneously start generating electric charges in response to the image-capturing start signal outputted by the switch. Then, the first group circuit cells stop generating the electric charges when the detected value converted from the electric charges obtained with the second group circuit cells reaches a predetermined value.

Thus, according to the claimed present invention, a portion of the circuit cells included in the imager (for instance, a CMOS imager) can be utilized for obtaining exposure controlling data, and therefore, the conventional photo-detecting element for measuring a field brightness is unnecessary, resulting in a cost-reduction of the image-capturing apparatus and an improvement of design flexibility for the appearance of the apparatus.

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In addition, other features and advantages of the claimed present invention are explained in detail throughout the present specification. For instance, as explained at page 65, line 23 to page 66, line 6, in an electronic still camera equipped with a flash-lighting apparatus, by emitting a flash-light from the flash-lighting apparatus when it is determined that a predetermined time has passed after the release switch was pushed but before the exposure amount reaches to the specific light amount, it might be possible to obtain an appropriate exposure amount.

It is respectfully submitted that the cited references do not at all disclose, teach or suggest the above described structural features and advantageous effects of the present invention as recited in new independent claim 52.

In particular, it is respectfully submitted that although Nakamura discloses one-dimensional SIT array 53 associated with photometric circuit 54, as shown in FIG. 11, Nakamura does not disclose, teach or suggest a two-dimensional imager in which second group circuit cells 50b are substantially uniformly disposed in the first group circuit cells 50a so as to measure an amount of light from the image for a purpose of a photometry operation. And it is respectfully submitted that Nakamura does not disclose, teach or suggest the structure of the circuit cells

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as recited in claim 52, whereby the circuit cells are selectable, either individually or in groups, by the controller.

Therefore, it is respectfully submitted that the SIT array of Nakamura clearly does not correspond to the imager recited in new independent claim 52.

In view of the foregoing, it is respectfully submitted that the present invention as recited in new independent claim 52, and claims 2 and 5-12 depending therefrom, clearly patentably distinguishes over Nakamura and Sugimoto, taken singly or in combination, under 35 USC 102 as well as under 35 USC 103.

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Entry of this Amendment, allowance of the claims and the passing of this application to issue are respectfully solicited.

If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned for prompt action.

Respectfully submitted,

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